SHARP COMPET

ELSI-811

ELECTRONIC CALCULATOR WITH ELSI

MODEL EL-811

INSTRUCTION MANUAL

CONTENTS

INTRODUCTION 1

FEATURES 2

EXTERNAL FEATURES 4

KEY IDENTIFICATION 6

SPECIFICATIONS 8

- CALCULATING UNIT 8
- AC ADAPTOR 9
- BATTERY UNIT 9
- SPARE BATTERY 10

HOW TO REPLACE THE BATTERY UNIT 11

CAUTION ON THE BATTERY UNIT 12

DOUBLE CAPACITY CALCULATION 14

OVERFLOW ERROR DETECTION 17

HINTS 21

OPERATION 22

INTRODUCTION

Sharp's amazing Compet EL-811 incorporating two ELSIs (Extra Large Scale Integration) another major advancement in the world of space-age miniaturization. Years of pioneering research and achievement in electronic engineering have enabled Sharp to develop an exceptionally remarkable to world's most personal electronic calculator with one memory register and double capacity mode, offering both maximum portability and a wide range of mathematical versatility. The EL-811 is thoroughly reliable and carries out calculations with amazing speed and efficiency. This booklet provides a detailed explanation of the Compet EL-811's operation.

FEATURES

1. Ultra-compact. So small, it can be operated in the palm of your hand.

The utilization of ELSIs results in the reduction of overall dimensions and weight, increased reliability and lower operating costs.

2. Double capacity

In multiplication and division, answers up to maximum numbers of 16 digits can be obtained even though EL-811 only has 8-digit display panel.

In division, can divide 16 digits by 8 digits. The upper 8 significant digits of the quotient are obtained as a result and the lower digits are zeros. However, the integral number of the quotient exceeds 8 digits, only the decimal position is memorized in the lower digits.

3. Wide range of calculations

In addition to its four arithmetical calculations and double capacity calculation, successive multiplication and division, repeat addition and subtraction, discount or tax calculation, memory calculation and other mixed calculations can be quickly performed with maximum efficiency.

4. Convenient constant multiplication and division

In multiplication or division, multiplicand or divisor is memorized as a constant number automatically. After performing the multiplication or division, constant calculations are performed by setting variable number and ( ) key only.

5. Rapid charging

When AC power is supplied to the EL-811 through the AC adaptor, with the power switch is placed in the OFF position, the battery can be charged approximately 3-hours. After charging, the EL-811 will operate on battery power for approximately 3.5-hour. When the battery is charged in 5-hour, it is charged more perfectly.

6. **Operates on three separate power sources**
   AC, built-in rechargeable battery or 12V car battery as desired.

7. **Convenient lamps for memory, lower digits indicator, constant mode indicator, and battery level indicator. (Refer to page 4 "External features" for further detailes)**

8. **"Zerosuppress system" makes reading figures easier.**

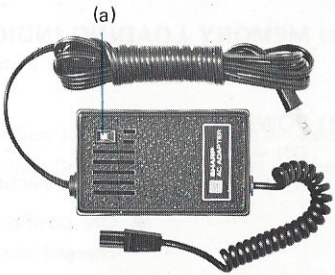
9. **Automatic clearing system**
   The machine is automatically cleared when the machine is turned on. Therefore, the calculation can be started immediately.

10. **Operation is possible even in the case of momentary power failure.**
    Even when the power cord is disconnected during operation with AC power source, the operation can be continued.

11. **Soft lighting green display**
    Our specially developed non-glare green display panel eliminates eye-strain, improves reading ease.

12. **Convenient carrying case.**
    Always ready to go with you and assist you, whether it be in the office, school or at home.

EXTERNAL FEATURES



(a) CHARGING LAMP

When operating the EL-811 on AC adaptor, this lamp indicates at all times. This lamp also indicates during rapid charging.
When the battery voltage is below the normal limit, this lamp will be lit and will gradually fade as the battery voltage increases. This state indicates batteries have been charged up to some extent.

(b) MINUS SIGN INDICATOR (–)

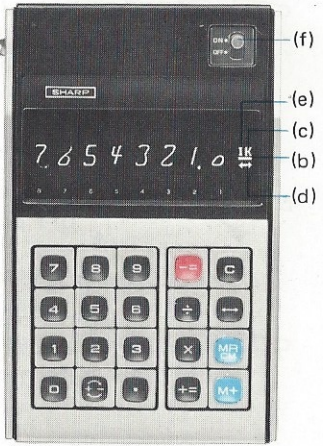
Automatically indicates when the result becomes negative.

(c) CONSTANT MODE INDICATOR (K)

Turns on when multiplication or division is performed by touching +/= , (−/= , M+) key, and multiplicand or divisor is memorized as a constant number automatically.
This indicator is turned off when the C , −/= , × or ÷ key is touched after multiplication or division. (Refer to page 28 "4. Constant multiplication and division" for further detailes.)

(d) LOWER DIGITS INDICATOR / BATTERY LEVEL INDICATOR (↔)

Turns on when the lower digits of double capacity are displayed by touching the ↔ key and turns off when the upper digits are displayed. Also, turns on when calculations can't be performed by the decrease of the battery voltage. In this case, the indicator will not turn off even when ↔ key is touched and miscalculation occurs.



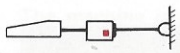
(e) MEMORY LOADING INDICATOR (I)

Turns on when the content of memory register is not zero.

(f) POWER SWITCH

ON — OFF position.

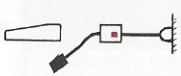
(a) When AC adaptor is connected with calculating unit and AC power source:



ON position: You can operate on AC power and the battery unit will be charged during operation. The charging lamp indicates at all times. Even when the power cord is disconnected during operation or in the case of momentary power failure, the operation can be continued by battery power without miscalculation because a power source is exchanged the battery power automatically. In these cases, the charging lamp turns off.

OFF position: Performed rapid charging. (Refer to page 2 "Rapid charging")

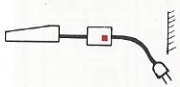
(b) When AC adaptor is not connected with calculating unit:



ON position: You can operate on battery power.

OFF position: The calculating unit is not operated.

(c) When AC adaptor is connected with calculating unit and not connected with AC power source:



ON position: You can operate on battery power and charging lamp on AC adaptor does not indicate.

OFF position: The calculating unit is not operated.

KEY IDENTIFICATION

C Clear key

Depressed once after an entry, clears only the entry. When a mistaken number is entered after setting a function (x or ÷), also clears the function. Depressed twice clears all the contents except memory register.

0 ~ 9 Numeral keys

Used for entering numbers.

• Decimal point key

Determines the decimal point position.

+/- Change sign key

Changes the sign of the displayed number.

X Multiplication key

Orders multiplication and starts operation when chain calculations are performed.

÷ Division key

Orders division and starts operation when chain calculations are performed.

+= Plus-equal key

Orders addition. Also derives product or quotient with double capacity.

-= Minus-equal key

Orders subtraction. Also derives product or quotient with double capacity in the case of negative multiplier or divisor.

Depressed after multiplication or division, clears the constant mode function.

MR CM Memory recall/Clear memory key

Depressed once summons the contents of memory on the display panel. Depressed twice successively, clears the contents of memory.

M+ Memory-plus key

a) Without multiplication or division function:
   Orders to add the displayed figures to the contents of memory register.

b) With multiplication or division function:
   Orders multiplication or division and adds its product or quotient to the contert of memory register.

↔ Upper / Lower digits recall key

Depressed once in the answer of double capacity, summons the lower digits of the answer on the display panel.

Depressed twice successively, summons the upper digits again.

SPECIFICATIONS

■ CALCULATING UNIT EL-811

Power source:	**AC 120V, 60 Hz by using.** AC adaptor (EL-81) DC 7.2V: 6 built-in rechargeable batteries (EL-84) DC 12V: car battery by using the car adaptor (EL-85)
Capacity:	
Display digit:	8 digits
Double capacity:	16 digits (In multiplication and division)
Addition & subtraction:	8 digits ± 8 digits = 8 digits
Multiplication:	8 digits x 8 digits = 16 digits
Division:	16 digits ÷ 8 digits = 8 digits (Listing number of dividend is within 8 digits)
Decimal point:	Complete floating decimal point system.
Sign indication:	Minus indication lamp in case of negative.
Calculations:	4 arithmetical calculations, successive multiplication and division, multiplication and division by constant, repeat addition and subtraction, product ± product with individual product, quotient ± quotient with individual quotient, power calculation, mixed calculations, etc.
Components:	ELSIs, etc.
Display tube:	Mini low power fluorescence display tube.
Clock frequency:	125 kHz ± 20%
Temperature:	0°C – 40°C (32°F – 104°F)
Power consumption:	DC: 1.0W, AC: 1.3W, OFF (rapid charging): 1.9W
Dimensions:	106mm(W) x 45mm(H) x 174mm(D) 4-1/7"(W) x 1-3/4"(H) x 6-3/4"(D)
Weight:	600 g (1.32 lbs.)

■ AC ADAPTOR EL-81

Power consumption:	4.5W
Dimensions:	70mm(W) x 62mm(H) x 102mm(D) 2-3/4"(W) x 2-1/2"(H) x 4"(D)
Weight:	450 g. (0.99 lbs.)

■ BATTERY UNIT EL-84E (EL-84A for Canada)

Type:	6 rechargeable nickel cadmium batteries in unit: 450 mAH, 7.2V
Usable time:	3.5 hours (20°C) (72°F) (Rating)
Charging time:	
Rapid charging:	Approximately 3 hours (when power switch is set at OFF position with AC adaptor) (20°C) (72°F) (Rating).
Standard charging:	Approximately 13～15 hours (performed while operating on ON position with AC adaptor) (20°C) (72°F) (Rating).

Note: Even when it is charged for longer than specified time, there is no danger of damage because of installed safety device in the battery unit. And the charger (EL-81) controls an electric current.

Since all the rechargeable batteries tend to discharge slightly over a period of time, it is recommended that all EL-811 batteries be charged before initial operation.

Note: Discharge of the battery is indicated by the battery level indicator. If this indicator remains lit, even after depressing the ↔ key continuously, charging is necessary.

■ CAR ADAPTOR EL-85 (Optional unit)

This car adaptor is used when operating the EL-811 in your car on the car battery (12V).

■ CARRYING CASE (Attached)

■ SPARE BATTERY (Optional unit)

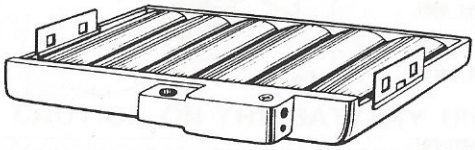
It is possible to charge a spare battery (EL-84), while the EL-811 is operating on DC power, with the use of a special connector (Option).

When the battery being used is discharged, continuous operation of EL-811 can be obtained by replacing the discharged battery with the charged spare battery.

When charging the spare battery, connect the battery unit (1) with the special connector (2) before connecting it with AC adaptor (3). Rapid charging (3 hours) of the spare battery is performed. When charging of the spare battery is completed, pull out AC adaptor (3) before disconnecting the special connector from the spare battery unit.

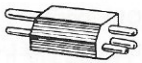
Note: The spare battery and special connector are optional.

spare battery

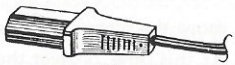


(1)

special connector



(2)



(3)

HOW TO REPLACE THE BATTERY UNIT

If the battery cannot be used for longer than one hours or so even after about 5-hour charging with the power switch set at OFF position or about 13 to 15 hours charging with ON position, the battery life is almost terminated. In such a case, the battery unit must be replaced with a new one.

Furthermore when the calculator is to be used for a long time with DC power, it will be very convenient to use this battery unit as a spare. Since the user is requested to change the battery unit, please exchange the battery unit in a proper manner according to the procedures mentioned below. If the battery unit is set in a wrong way or touches the other electronic parts, troubles may be caused. Therefore, replacement of the battery unit must be carried out with sufficient care.

1. First set the power switch to OFF position, and then remove the screw located on the back of the EL-811 (Fig. 1). At this time, protect the calculator by putting a soft cloth under the calculator. Unhook the bottom cabinet by pulling it ahead slightly. (Fig. 2).
2. Remove the battery unit: Grasp the battery case as fig. 3 and lift up A-side while giving a power in the direction of arrow mark.

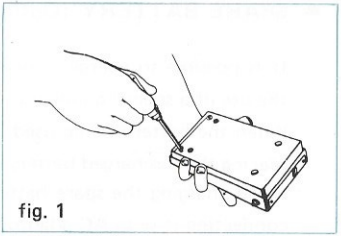


fig. 1

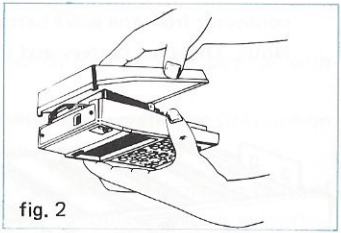


fig. 2

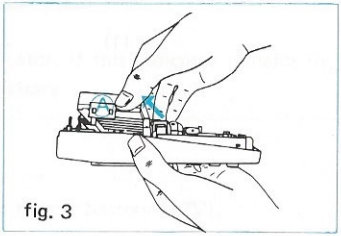


fig. 3

3. Remove the battery connector, as shown. (Fig. 4)
4. Connect the connector to the battery unit. The black cord (thin pin) must come upside (minus). It must be connected correctly for plus and minus. (Fig. 5)
5. Set the new battery unit in place. And creep the cord of connector, as shown, (Fig. 4)
6. Replace the bottom cabinet following to the reverse orders of 1 and 2, and clamp it with screws.

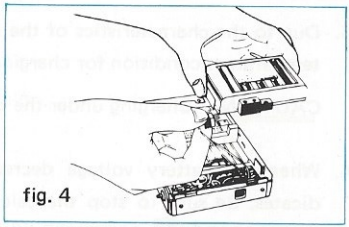


fig. 4

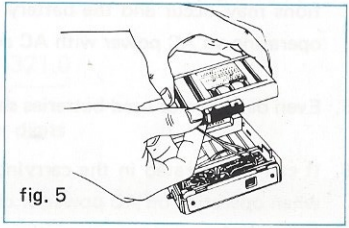


fig. 5

CAUTION ON THE BATTERY UNIT

1. Comparable to any type of battery generally used, if the EL-811 is left unused for two (2) to three (3) months the battery unit will slowly discharge. The original state of the battery unit can be restored by several charging and discharging cycles.

2. If a battery unit is to be stored for long periods, the temperature condition must be within -10°C to 45°C (14°F to 115°F) because self-discharging is apt to be influenced by temperature and the storage place must be free from moisture, or direct sunlight.

3. Due to the characteristics of the nickel cadmium battery, 20°C to 25°C (68°F to 77°F) is the best temperature condition for charging and discharging efficiency.

   CAUTION: Charging under the temperature condition of below 0°C (32°F) should be avoided.

4. When the battery voltage decreases below the normal limits, the battery level indicator (⟷) indicates. Be sure to stop the calculation as soon as the battery voltage is decreased. If the EL-811 is used with the battery source being applied after the battery level indicator indicates, miscalculations may occur and the battery unit's life expectancy is shortened. Charge the battery unit while operating on AC power with AC adaptor or rapid charging.

5. Even defective or used batteries should not be thrown into a fire or dump into a dustbin.

6. It can be operated in the carrying case by DC power. But, be sure to take it out of the carrying case when operating on AC power or charging the unit.

7. Be sure to charge the battery by using AC adaptor (EL-81). Do not use other chargers.

8. Since the charger EL-81 is to be used for EL-811, it should not be used for the batteries of other machines or adaptors.

9. For best results operate the EL-811 on the battery unit occasionally not always on AC power. This assures battery life longer.

DOUBLE CAPACITY CALCULATION

Double capacity calculations are possible in multiplication and division.
Addition and subtraction can not be performed in double capacity.
Refer to the following examples.

Ex. In multiplication, summon the lower digits of the product by depressing ⟷ key and summon the upper digits again by depressing ⟷ key.

11111111 x 11111111 = 12345678 7654321.0

upper digits lower digits

Steps	Operation	Display	Note
1	11111111	11111111.	
2	×	11111111.	
3	+=	12345678 K	upper digits
4	⟷	7654321.0 K ⟷	lower digits
5	⟷	12345678 K	

Ex. When multiplication is performed (in this case the result of double capacity is the multiplicand), the lower 8 digits in the multiplicand are regarded as zero.

88880000 x 22222 x 9

Steps	Operation	Display	Note
1	88880000	88880000.	
2	[X]	88880000.	
3	22222	22222.	
4	[X]	19750913	"1975091300000.000 x 9"
5	9	9.	is carried out.
6	[+=]	17775821 K	upper digits
7	[↔]	700000.00 K ↔	lower digits

Note: In above example, even if summons the lower digits by depressing [↔] key at 5th step and multiplies the lower digits by 9, the result becomes as same as above result.

Ex. In division, a maximum capacity of dividend is 16 digits but a read-in number is only 8 digits, only the upper 8 digits are obtained as a result. Accordingly, the lower 8 digits are cleared.
When the integral number of the quotient is larger than 8 digits, only the decimal point is memorized in the lower digits.

11111111 x 11111111 ÷ 20

Steps	Operation	Display	Note
1	11111111	11111111.	
2	[X]	11111111.	
3	11111111	11111111.	
4	[÷]	12345678	
5	20	20.	
6	[+=]	61728393 K	upper digits
7	[↔]	00000.000 K ↔	lower digits

Ex. Addition and subtraction can not be performed in double capacity.

98765432 + 4567890

Steps	Operation	Display	Note
1	98765432	98765432.	
2	[+=]	98765432.	
3	4567890	4567890.	
4	[+=]	0.0.0.0.0.0.0.0.	Error

OVERFLOW ERROR DETECTION

The overflow error checking system operates for the following miscalculations.

(1) When 9 digits number is listed as integral number.
(2) When the integral number of the result exceeds 8 digits in addition and subtraction.
(3) When the integral number of the result exceeds 8 digits in memory addition and subtraction.
(4) When the integral number of the result exceeds 16 digits in multiplication and division.
(5) When the integral number that is added to or subtracted from memory exceeds 8 digits.
(6) When division is performed and divisor is zero.

In above cases, the contents stored in the memory are retained except (3). In case of (3), the content of memory register become zero. When the overflow error is detected, all keys except **C** key are electronically locked, the indication will become zero and all decimal points turn on. Accordingly, to reset the overflow error checking system, depress the **C** key.

Refer to next examples:

Ex. 1 When the overflow error is detected by (1);

Steps	Operation	Display	Note
1	265	265.	
2	+=	265.	
3	3287	3287.	
4	+=	3552.	
5	123456789	0.0.0.0.0.0.0.0.	Overflow error

Ex. 2 In the case of (2);

Steps	Operation	Display	Note
1	2346894	2346894.	
2	+=	2346894.	
3	96573265	96573265.	
4	+=	98920159.	
5	2653647	2653647.	
6	+=	0.0.0.0.0.0.0.0.	Overflow error

Ex. 3 In the case of (3);

Steps	Operation	Display	Note
1	68395724	68395724.	
2	M+	68395724. I	
3	3865179	3865179. I	
4	M+	3865179. I	
5	59362104	59362104 I	
6	M+	0.0.0.0.0.0.0.	Overflow error

Note: In this case, the content of memory register become zero.

Ex. 4 In the case of (4);

Steps	Operation	Display	Note
1	812345	812345.	
2	×	812345.	
3	267890	267890.	
4	×	21761910	
5	8426589	8426589.	
6	×	0.0.0.0.0.0.0.	Overflow error

Ex. 5 In the case of (5);

Steps	Operation	Display	Note
1	123	123.	
2	×	123.	
3	45	45.	
4	M+	5535.0000 KI	
5	35876	35876. KI	
6	×	35876. I	
7	439672	439672. I	
8	M+	0.0.0.0.0.0.0.0. I	Overflow error
9	C	0. I	Reset the error
10	MR CM	5535.0000 I	

Note: In this case, the contents stored in the memory are retained.

Ex. 6 In the case of (6);

Steps	Operation	Display	Note
1	432	432.	
2	÷	432.	
3	0	0.	
4	+/=	0.0.0.0.0.0.0.0.	Error

HINTS

1. As highly sensitive ELSIs and electronic components are used, avoid placing the unit in hot, dusty or humid locations, or on surfaces subject to excessive vibration.
2. Do not jolt or drop the unit.
3. When cleaning the cabinet use the enclosed cloth. Do not use a wet cloth or any organic solutions such as kerosene or benzine.
4. Be sure to set the power switch at OFF position after using and disconnect the power cord surely.

OPERATION

Please read this paragraph carefully before start the calculation.

1. When the power switch is turned on, only zero of 1st digit is displayed and others are turned off. (Zerosuppress) In this time the automatic clear function works to clear the unit automatically. Therefore the calculation can be started immediately.
2. Be sure to clear the content of memory register by depressing MR CM key twice before performing memory calculation.
3. Be sure to clear the contents by depressing C key twice before performing addition or subtraction.

1. ADDITION AND SUBTRACTION

Ex. 1–1 123.1 + 864.2 + 458 = 1445.3

Steps	Operation	Display	Note
1	123.1	123.1	
2	[+=]	123.1	
3	864.2	864.2	
4	[+=]	987.3	
5	458	458.	
6	[+=]	1445.3	Ans.

Ex. 1–2 358.8 – 1241.6 – 27.5 = –910.3

Steps	Operation	Display	Note
1	358.8	358.8	
2	[+=]	358.8	
3	1241.6	1241.6	
4	[–=]	882.8 –	Minus sign indicator on.
5	27.5	27.5 –	
6	[–=]	910.3 –	Ans.

Ex. 1–3 12.345678 + 1234.5678 = 1246.913478

Steps	Operation	Display	Note
1	12.345678	12.345678	
2	[+=]	12.345678	
3	1234.5678	1234.5678	
4	[+=]	1246.9134 78	←Not displayed Ans.

Note: Underflow system.

In this calculation, the decimal point is aligned to that of addend and the lowest two digits of the answer which exceeds 8 digits "78" are discarded.

Ex. 1–4 123 + 123 − 256 − 256 = −266

Steps	Operation	Display	Note
1	123	123.	
2	[+=]	123.	
3	[+=]	246.	
4	256	256.	
5	[−=]	10. −	
6	[−=]	266. −	Ans.

2. MULTIPLICATION

Ex. 2–1 2.2 x 3.3 x 4.4 = 31.944

Steps	Operation	Display	Note	Note
1	2.2	2.2		
2	[X]	2.2		
3	3.3	3.3		
4	[X]	7.2600000		
5	4.4	4.4		
6	[+=]	31.944000 K	Ans. (K indicator on)	

Note: For further continued successive multiplication, depress the [X] key instead of [=] key repeatedly and proceed the calculations.

Ex. 2–2 824005.1 x 930047.2 = 766363636040.72

Steps	Operation	Display	Note	
1	824005.1	824005.1		
2	[X]	824005.1		
3	930047.2	930047.2		
4	[+=]	76636363 K	Ans.	upper part
5	[↔]	6040.7200 K ↔	Ans.	lower part
6	[↔]	76636363 K		

Ex. 2–3 (-4) x 5 = -20

Steps	Operation	Display	Note
1	4	4.	
2	[+/-]	4. -	
3	[x]	4. -	
4	5	5.	
5	[=]	20.000000. - K	Ans.

Ex. 2–4 3.6 x (-42.8) = -154.08

Steps	Operation	Display	Note
1	3.6	3.6	
2	[x]	3.6	
3	42.8	42.8	
4	[-=]	154.08000 - K	Ans.

Note: In the above example, the result becomes the same in the case of operating [[+/-] → [=]] instead of [-=] key (4 step).

3. DIVISION

Ex. 3–1 $256 \div 12 \div 0.56 \div 2.3 = 16.563146$

Steps	Operation	Display	Note
1	256	256.	
2	÷	256.	
3	12	12.	
4	÷	21.333333	
5	.56	0.56	
6	÷	38.095237	
7	2.3	2.3	
8	+=	16.563146 K	Ans.

Note: For further continued successive division, depress the ÷ key instead of = key repeatedly and proceed the calculations.

Ex. 3–2 $(-264) \div 12 = -22$

Steps	Operation	Display	Note
1	264	264.	
2	±	264. -	
3	÷	264. -	
4	12	12.	
5	+=	22.000000 - K	Ans.

4. CONSTANT MULTIPLICATION AND DIVISION

Ex. 4–1 (1) 6 x 13 = 78
(2) 6 x 25 = 150
(3) 6 x (-26) = -156

Steps	Operation	Display	Note
1	6	6.	
2	×	6.	
3	13	13.	
4	+=	78.000000 K	Ans. (1),
5	25	25. K	
6	+=	150.00000 K	Ans. (2)
7	26	26. K	
8	-=	156.00000 - K	Ans. (3),

Note: In this case, multiplicand "6" is memorized as a constant number automatically and K indicator is always lit after 4th step.

Ex. 4–2 (1) $3 \div \underline{125} = 0.024$

(2) $234 \div \underline{125} = 1.872$

(3) $(-38) \div \underline{125} = -0.304$

Steps	Operation	Display	Note
1	3	3.	
2	÷	3.	
3	125	125.	
4	=	0.0240000 K	Ans. (1),
5	234	234. K	
6	=	1.8720000 K	Ans. (2)
7	38	38.K	
8	−	0.3040000 - K	Ans. (3)

Note: In this case, divisor "125" is memoriezed as a constant number automatically and K indicator is always lit after 4th step.

Ex. 4–3 (1) 44 x 1010 x 12345 = 548611800
(2) 44 x 1010 x 198767 = 8833205480
(3) 44 x 1010 x (−362983) = −16130964520

Steps	Operation	Display	Note
1	44	44.	
2	×	44.	
3	1010	1010.	
4	×	44440.000	
5	12345	12345.	
6	=+	54861180 K	Ans. (1) upper part
7	↔	0.0000000 K ↔	Ans. (1) lower part
8	198767	198767. K	
9	=+	88332054 K	Ans. (2) upper part
10	↔	80.000000 K ↔	Ans. (2) lower part
11	362983	362983. K	
12	=−	16130964 − K	Ans. (3) upper part
13	↔	520.00000 − K ↔	Ans. (3) lower part

Note: In this case, "44 x 1010 = 44440 " is memorized as a constant number automatically.

5. MIXED CALCULATION

Ex. 5 $$\left\{\frac{(5 + 12) \times 0.2 + 48 - 16}{4}\right\}^2 = 78.3225$$

Steps	Operation	Display	Note
1	5	5.	
2	[+=]	5.	
3	12	12.	
4	[+=]	17.	
5	[×]	17.	
6	.2	0.2	
7	[+=]	3.4000000 K	
8	[−=]	3.4000000	Note (1), K indicator off
9	48	48.	
10	[+=]	51.400000	
11	16	16.	
12	[−=]	35.400000	
13	[÷]	35.400000	
14	4	4.	
15	[×]	8.8500000	
16	[+=]	78.322500 K	Ans.

Note (1): Used for reset the constant mode.

6. DISCOUNT CALCULATION

Ex. 6 Price of $300 articles with 12% discount

300 − 300 x 0,12 = 264 dollars

Steps	Operation	Display	Note
1	300	300.	
2	×	300.	
3	.12	0.12	
4	−=	36.000000 −K	Discount value
5	−=	36.000000 −	
6	+=	264.0000	Ans.

7. TAX CALCULATION

Ex. 7 Price of $300 articles with 11% tax included.

300 + 300 x 0.11 = 333 dollars

Steps	Operation	Display	Note
1	300	300.	
2	×	300.	
3	.11	0.11	
4	+/=	33.000000 K	Tax value
5	−/=	33.000000	
6	+/=	333.00000	Ans.

8. CORRECTING MISTAKES

Ex. 8–1 4 + 3 + ~~22~~ 2 = 9

Steps	Operation	Display	Note
1	4	4.	
2	[+=]	4.	
3	3	3.	
4	[+=]	7.	
5	22	22.	(mistake)
6	[C]	7.	
7	2	2.	(correct)
8	[+=]	9.	Ans.

Note: In the above cases, when "22" is entered by error (step 5), clear mistaken entry (22) by depressing [C] key for once and enter correct numeral "2".

It is possible to currect by repeating addition or subtraction as follows:

Steps	Operation	Display	Note
1	4	4.	
2	[+=]	4.	
3	3	3.	
4	[+=]	7.	
5	22	22.	(mistake)
6	[+=]	29.	Note (1)
7	[−=]	7.	Note (1)
8	2	2.	(correct)
9	[+=]	9.	Ans.

Note (1): In these steps, cleared a mistaken entry (22) by these operations.
In the case of operating [[−=] → [+=]], becomes the same result.

Ex. 8–2 $2 \times \cancel{3} = 4 = 8$

Steps	Operation	Display	Note
1	2	2.	
2	[X]	2.	
3	3	3.	(mistake)
4	[C]	2.	
5	[X]	2.	
6	4	4.	(correct)
7	[+=]	8.0000000	Ans.

Note: In the above case, when "3" is entered by error (step 3), clear mistaken entry (3) and the function (x) by depressing [C] key for once. Then depress the same function key again (step 5) and enter correct numeral "4" (step 6).

Ex. 8–3 Function key correction ([X] , [÷] keys)

Function key correction is possible in multiplication and division as follows:

A [X] [÷] B ..... in this case, A ÷ B is performed instead of A x B.

A [÷] [X] B ..... in this case, A x B is performed instead of A ÷ B.

9. MEMORY CALCULATION

Ex. 9–1 Sum (Difference) of products

$(4 \times 5) + (3 \times 8) - (2 \times 9) = 26$

Steps	Operation	Display	Note
1	MR CM MR CM	0.	Clear memory
2	4	4.	
3	×	4.	
4	5	5.	
5	M+	20.000000 KI	Product (Memory indicator on)
6	3	3. KI	
7	×	3. I	
8	8	8. I	
9	M+	24.000000 KI	Product
10	2	2. KI	
11	×	2. I	
12	9	9. I	
13	⇄	9. - I	
14	M+	18.000000 - KI	Product
15	MR CM	26.000000 KI	Ans.

Note: In memory subtraction, the displayed number is subtracted from memory register by depressing M+ key after ⇄ key.

Ex. 9–2 $(3 \times 5) + 21 + (4 \times 5) - 13 = 43$

Steps	Operation	Display	Note
1	MR CM MR CM	0.	Clear memory
2	3	3.	
3	×	3.	
4	5	5.	
5	M+	15.000000 KI	
6	21	21. KI	
7	M+	21.000000 KI	
8	4	4. KI	
9	×	4. I	
10	5	5. I	
11	M+	20.000000 KI	
12	13	13. KI	
13	±	13. −KI	
14	M+	13.000000 −KI	
15	MR CM	43.000000 KI	Ans.

Note: In the case of depressing M+ key after numeral key in memory calculation (Step 5 ~ 6 and 11, 12 ~ 13), constant mode does not reset and the content of displayed number is added to the memory register.

Ex. 9–3 Sum (Difference) of quotients

$(568 \div 3 \div 11) + (245 \div 17) - (397 \div 18) = 9.568329$

Steps	Operation	Display	Note
1	MR CM MR CM	0.	Clear memory
2	568	568.	
3	÷	568.	
4	3	3.	
5	÷	189.33333	
6	11	11.	
7	M+	17.212120 KI	Quotient
8	245	245. KI	
9	÷	245. I	
10	17	17. I	
11	M+	14.411764 KI	Quotient
12	397	397. KI	
13	÷	397. I	
14	18	18. I	
15	±	18.– I	
16	M+	22.055555 –KI	Quotient
17	MR	9.568329 KI	Ans.

Ex. 9–4 Product (Quotient) of sums (differences)

$(286 - 35) \times (68 + 186) = 63754$

Steps	Operation	Display	Note
1	MR CM MR CM	0.	Clear memory
2	286	286.	
3	M+	286. I	
4	35	35. I	
5	±	35. −I	
6	M+	35. −I	
7	C	0. I	
8	68	68. I	
9	+ =	68. I	
10	186	186. I	
11	+ =	254. I	
12	×	254. I	
13	MR	251. I	
14	+ =	63754.000 KI	Ans.

Ex. 9–5 Constant accumulative calculation

$(5 \times 9) + (5 \times 6) + 123 - (5 \times 7) = 163$

Steps	Operation	Display	Note
1	MR CM MR CM	0.	Clear memory
2	5	5.	
3	×	5.	
4	9	9.	
5	M+	45.000000 KI	
6	6	6. KI	
7	+/=	30.000000 KI	
8	M+	30.000000 KI	
9	123	123. KI	
10	M+	123.00000 KI	
11	7	7. KI	
12	−/=	35.000000 −KI	
13	M+	35.00000 −KI	
14	MR CM	163.00000 KI	Ans.

Note: In memory constant calculation, depression of +/= M+ or −/= M+ is necessary for over 2nd term. In the case of depressing M+ key after numeral key (Step 9 and 10, constant mode does not reset and the content of displayed number is added to the memory register.

ERRATA SHEET

Please pardon our errors and correct as follows: (Page. 6) Clear key: "When a mistaken . . . . . clears the function." Omit (Page. 36) "Ex. 8–2": Change as follows;

Steps	Operation	Display	Note
1	2	2.	
2	×	2.	
3	3	3.	(mistake)
4	C	2.	
5	4	4.	(correct)
6	+=	8.0000000 K	Ans.

Note: In the above case, when "3" is entered by error(step 3), clear mistaken entry(3) depressing C key for once. Then enter correct numeral "4"(step 5).

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